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PTO/SB/05 (4/98)

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JCP44 U.S. PTO  
12/22/99

**UTILITY  
PATENT APPLICATION  
TRANSMITTAL**

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. RCA 89,912

First Inventor or Application Identifier Winter

Title Replay appliance for recording...

Express Mail Label No. EL533625453US

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

1.  Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2.  Specification [Total Pages 10]  
(preferred arrangement set forth below)
  - Descriptive title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
3.  Drawing(s) (35 U.S.C. 113) [Total Sheets 1]
4. Oath or Declaration [Total Pages 1]
  - a.  Newly executed (original or copy)
  - b.  Copy from a prior application (37 C.F.R. § 1.63(d))  
(for continuation/divisional with Box 16 completed)
    - i.  DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

**\* NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).**

Assistant Commissioner for Patents  
ADDRESS TO: Box Patent Application  
Washington, DC 20231

5.  Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - a.  Computer Readable Copy
  - b.  Paper Copy (identical to computer copy)
  - c.  Statement verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

7.  Assignment Papers (cover sheet & document(s))
8.  37 C.F.R. § 3.73(b) Statement  Power of  
(when there is an assignee)  Attorney
9.  English Translation Document (if applicable)
10.  Information Disclosure Statement (IDS)/PTO-1449  Copies of IDS  
Statement Citations
11.  Preliminary Amendment
12.  Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
13.  Small Entity Statement(s)  Statement filed in prior application,  
(PTO/SB/09-12)  Status still proper and desired
14.  Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
15.  Other: .....

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

Continuation  Divisional  Continuation-in-part (CIP) of prior application No: \_\_\_\_\_

Prior application information: Examiner \_\_\_\_\_

Group / Art Unit: \_\_\_\_\_

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

**17. CORRESPONDENCE ADDRESS**

Customer Number or Bar Code Label (Insert Customer No. or Attach bar code label here) or  Correspondence address below

Name	Joseph S. Tripoli THOMSON multimedia Licensing Inc.				
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Name (Print/Type)	Paul P. Kiel	Registration No. (Attorney/Agent)	40,677
Signature	<i>Paul P. Kiel</i>		Date 12/22/99

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231.

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Marco Winter  
Filed: Herewith  
For: REPLAY APPLIANCE FOR RECORDING MEDIA  
CONTAINING INFORMATION BLOCKS.

PRELIMINARY AMENDMENT

Hon. Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination and calculation of fees, please enter the following Preliminary Amendment and the accompanying remarks.

IN THE CLAIMS

Please amend the claims and add new claim 12 as follows:

1. (Amended) Replay appliance for accessing at a defined playing time information stored on recording media containing information blocks[, having means for access, at a defined playing time, to the recording media having a scanning device] , the appliance comprising:  
a scanning device for scanning data on a recording medium;  
[a] search means for binary searching of the recording medium on the basis of a replay time[,] ; and  
a comparator for comparing a replay time which has been [found] scanned from the recording medium with a desired replay time [are provided in the replay appliance, and] , wherein the scanning device scans the recording medium at a point which corresponds to [the] a result of [the] a comparison[, for] by the comparator to access information at [a] the defined playing time.

In claim 2, line 5, delete "is", and  
line 6, delete "characterized by", and substitute therefor  
--associated with--.

In claim 9, line 2, delete the second "a", and substitute therefor  
--the--,  
line 2, delete "controls", and substitute therefor --drives--, and  
line 4, delete " the access at a", and substitute therefor --the--.

In claim 10, line 4, delete "the access at a", and substitute therefor  
--the--.

12. (Newly Added) Replay appliance according to Claim 11,  
wherein the designator is a navigation sector designator.

DRAFTS & REVISIONS

IN THE ABSTRACT

Please replace the abstract with the following:

-- A replay appliance at a defined playing time for accessing information on recording media containing information blocks, if the recording medium has no concordance list producing a relationship between the replay time and the recording location, or the concordance list is damaged. In order to access or to replay information from a recording medium at a defined playing time, the recording medium being, for example, a Digital Versatile Disk ("DVD") which does not include DVD Video Title Set Time Map Table, a replay appliance is provided which drives a scanning device using a binary search to a point on the recording medium which corresponds to the access point defined by the playing time. The field of application of the invention extends to replay appliances for recording media containing information blocks, such as a digital video/disc (also called a DVD). --

REMARKS

Claims 1-12 are pending. The claims have been amended to correct informalities and to place them in a better format for examination. No new matter has been added.

No fee is believed due in regard to the present preliminary amendment. However, if a fee is due, please charge the fee to Deposit Account 07-0832.

Respectfully submitted,  
Marco Winter

  
By: Paul P. Kiel  
Attorney for Applicant  
Reg. No.40,677  
(609) 734-9560

Date: 12/22/99

THOMSON multimedia Licensing Inc.  
Patent Operations  
P.O. Box 5312  
Princeton, NJ 08543-5312

TITLE

Replay appliance for recording media containing information blocks

5

FIELD OF THE INVENTION

The invention relates to a replay appliance for recording media containing information blocks, having means for access, at a defined playing time, to video information on a Digital Versatile Disc, which is also called a DVD, without a so-called DVD Video Title Set Time Map Table.

BACKGROUND OF THE INVENTION

According to the DVD Specification for read-only discs, Part 3, in Version 1.0, which contains the video specification, a so-called DVD Video Title Set Time Map Table is provided on the DVD disc, by means of which can be accessed as a function of the playing time, in order to replay a video sequence of a movie from a desired playing start time. This table contains all the necessary information and entry points to allow a replay appliance to be used to directly access a video sequence which corresponds to a specific replay time or running duration or, for example, to start replaying a movie which has been recorded on a DVD from a time which corresponds to a predetermined playing time in the film. If, for example, the first ten minutes of a movie are skipped, then the Video Title Set Time Map Table can be used to jump directly to the point in a movie which corresponds to this replay time when viewed continuously. Using the data contained in the Video Title Set Time Map Table on the disc, the scanning device in the replay appliance is driven directly to a scanning point on the disc which contains the data corresponding to a predetermined replay time.

The Video Title Set Time Map Table contains the recording point for the video data in each program chain in the video title for each time during replay.

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However, it is only optional for this table to be provided on the disc, so that it is not generally available in the replay appliance for finding a recording point on the disc corresponding to a replay time which can be predetermined.

#### SUMMARY OF THE INVENTION

The object of the invention is to provide a replay appliance for recording media containing information blocks, which allows access, at a defined playing time, to video information on a DVD even without a DVD Video Title Set Time Map Table being recorded on the disc.

This object is achieved by means specified in independent claims, and advantageous refinements and developments are specified in dependent claims.

One aspect of the invention is to allow access, at a defined playing time, to video information on a DVD, despite there not being a DVD Video Title Set Time Map Table or the DVD Video Title Set Time Map Table being damaged.

According to the invention, means are provided in the replay appliance, using which the recording medium is searched for a characteristic feature. It has been found that recording media having information blocks have so-called designators that are used, in an advantageous manner, to find so-called navigation sectors on the disc. The sectors of the recording medium are searched using a means provided in the replay appliance, using which means the data stream read from the recording medium is analyzed to find a navigation sector designator. If such a designator is found, a statement about the present replay time contained in the navigation sector information is evaluated and is compared with a predetermined playing time from which it is intended to replay information stored on the recording medium. As a result of the

comparison, a determination is made as to whether a point corresponding to the desired playing duration is located on the recording medium before or after the point at which the navigation sector designator and the  
5 replay time contained in the navigation sector information were found. The recording medium is then scanned at a point corresponding to the determined direction, and the process is repeated until the desired start position or a predetermined start region  
10 for replaying is found.

Thus, using a replay appliance for recording media containing information blocks, this allows access, at a defined playing time, to video information on a DVD in an advantageous manner, likewise using a binary search, when said DVD has no DVD Video Title Set Time Map Table or a DVD Video Title Set Time Map Table which cannot be evaluated. In this case, the term binary search covers the comparison of information read from the recording  
15 medium which matches a binary word that characterizes the designator, and the evaluation of binary information which is contained in one of the files  
20 which are identified by the designator.

25 The invention will be explained in more detail in the following text with reference to a drawing.

#### BRIEF DESCRIPTION OF THE DRAWING

30 The figure shows an exemplary embodiment for access, at a defined playing time, to video information on a DVD even without a DVD Video Title Set Time Map Table being recorded on the disc.

#### 35 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Since no time code corresponding to the CD Audio is available, owing to the breakdown and interleaving of the information stored in information blocks, for access, at a defined playing time, to video

information, it must initially be assumed that it is impossible to replay, at a defined playing time, a recording medium having information blocks when there is no DVD Video Title Set Time Map Table or the DVD  
5 Video Title Set Time Map Table is damaged.

Corresponding to the invention, the replay appliance contains a search means for finding a designator, which in this case is a navigation sector designator that is  
10 also referred to as NV\_PCK ID. The search means is preferably a mask, which corresponds to the binary word of the navigation sector designator and is used to find the navigation sector designator in the data stream read from the recording medium. The method for finding  
15 the navigation sector designator using a mask corresponding to the binary word of the navigation sector designator may be either an iterative approximation method, as is illustrated in the figure, or else other search methods, for example a continuous  
20 search in the forward or reverse direction, or a search starting from an estimated value. In order to replay, at a defined playing time, a recording medium having information blocks, using the iterative approximation method, the recording medium is first of all scanned,  
25 in a first step S1, at a position which corresponds approximately to the center of the recording medium. This physical point on the recording medium will, however, as a rule not correspond to half the replay duration of an item of video information (called a  
30 video object VO) on the disc, since the replay duration and the physical point on the disc are not proportional owing to the data and recording structure. Furthermore, the amount of data required for replaying depends on the nature of the video object VO, since, as a rule,  
35 the only information recorded is that which relates to changes from one frame to the following frame. A very wide tolerance can therefore be allowed for the first point on the recording medium that is to be driven to by a scanning device in the replay appliance.

From the point on the recording medium, which the scanning device of the replay appliance jumps to, the information recorded there is then read and is compared  
5 with a mask that corresponds to the binary word of the navigation sector designator. As soon as a navigation sector designator has been detected, information contained in the navigation sector information, which is also called the navigation packet NV-PCK, is then  
10 evaluated relating to a replay time which corresponds to the playing time from the start if the video information were replayed continuously. The means required to evaluate this replay time, which is also called the playback time PGC, are already provided in  
15 the replay appliance for continuously replaying video information, so that there is no need for any further explanation relating to this. A relationship between the recording point and the replay time is then produced by a binary search carried out in this way and  
20 is used to approach a point on the recording medium which must be found and scanned for replaying at a defined playing time, even without a DVD Video Title Set Time Map Table. By comparing the replay time determined at the scanning point with the time from  
25 which replaying at a defined playing time is intended to take place, that point is then defined at which the recording medium must be scanned in a second step S2 unless a match has already been found. In the example shown in the figure, the aim is to replay, with a  
30 defined playing time, from a playing time which is located before the determined position, so that the recording medium is scanned by the scanning device in this second step S2 at a point which is also physically located before the point on the recording medium that  
35 was scanned in the first step S1. This second point may also be an arbitrary point in the region before the point scanned in the first step S1. However, it is also possible to determine the time difference between the replay time determined in the first step S1 and the

desired playing time, and to define a jump distance corresponding to the result.

A binary search is then carried out once again at the  
5 second point, which results in a determination being made as to whether a point to be sought for replay at a defined playing time is located before or after the present scanning position. If the replay time determined in the second step S2 is not so far away  
10 from the desired playing time, a third point on the recording medium is scanned, depending on the result of the comparison, in a third step S3. In accordance with the figure, a replay time was determined in the step S2 which is located before the desired playing time, so  
15 that the scanning device of the replay appliance is driven, in a third step S3, to a point on the recording medium which is located after the point on the recording medium scanned in the second step S2 and before the point on the recording medium scanned in the  
20 first step S1. Using an iterative approximation method, a point on the recording medium which corresponds to a desired playing time is thus found even without a DVD Video Title Set Time Map Table, and the process of replaying starts at a defined playing time in the  
25 fourth step S4.

To reduce the number of steps to be carried out in order to determine the scanning point on the recording medium corresponding to replaying at a defined playing time, it is possible to use a tolerance window, which starts the replay process at a distance from a predetermined playing time.

The invention is intended for use in a replay appliance for recording media containing information blocks,  
35 having means for access, at a defined playing time, to video information on a Digital Versatile Disc, called a DVD, even without a so-called DVD Video Title Set Time Map Table, and can in general be used for access, at a defined playing time, to information on a recording

medium where there is no proportionality between the recording point and the replay time and no concordance list is available defining the relationship between the replay time and the recording point.

## Patent Claims

1. Replay appliance for recording media containing information blocks, having means for access, at a defined playing time, to the recording media having a scanning device comprising:  
5 a search means for binary searching of the recording medium on the basis of a replay time, and  
a comparator for comparing a replay time which has been  
10 found with a desired replay time are provided in the replay appliance, and the scanning device scans the recording medium at a point which corresponds to the result of the comparison, for access at a defined playing time.
- 15 2. Replay appliance according to Claim 1, wherein the search means for binary searching is a comparator for comparing information read from the recording medium with a binary word, and an evaluator for evaluating a  
20 recording medium replay time is contained in a file characterized by the binary word.
- 25 3. Replay appliance according to Claim 2, wherein the comparator is a mask for comparing information read from the recording medium with a binary word.
- 30 4. Replay appliance according to Claim 2, wherein the binary word is a designator recorded on the recording medium.
5. Replay appliance according to Claim 4, wherein the designator is a navigation sector designator.
- 35 6. Replay appliance according to Claim 1, wherein the desired replay time is a replay time which is intended for access, at a defined playing time, to the recording medium.

7. Replay appliance according to Claim 1, wherein the desired replay time is a replay time provided within a tolerance window, for access, at a defined playing time, to the recording medium.

5

8. Replay appliance according to Claim 1, wherein the comparator for comparing a replay time that has been found with a desired replay time drives the scanning device to a point on the recording medium which corresponds to the result of the comparison.

10

9. Replay appliance according to Claim 1, wherein for access at a defined playing time, a comparator controls the scanning device to a point on the recording medium which corresponds to the access at a defined playing time.

15

10. Replay appliance according to Claim 1, wherein the scanning device is controlled using an iterative approximation method to a point on the recording medium which corresponds to the access at a defined playing time.

20

11. Replay appliance according to Claim 3, wherein the binary word is a designator recorded on the recording medium.

25

00000000000000000000000000000000

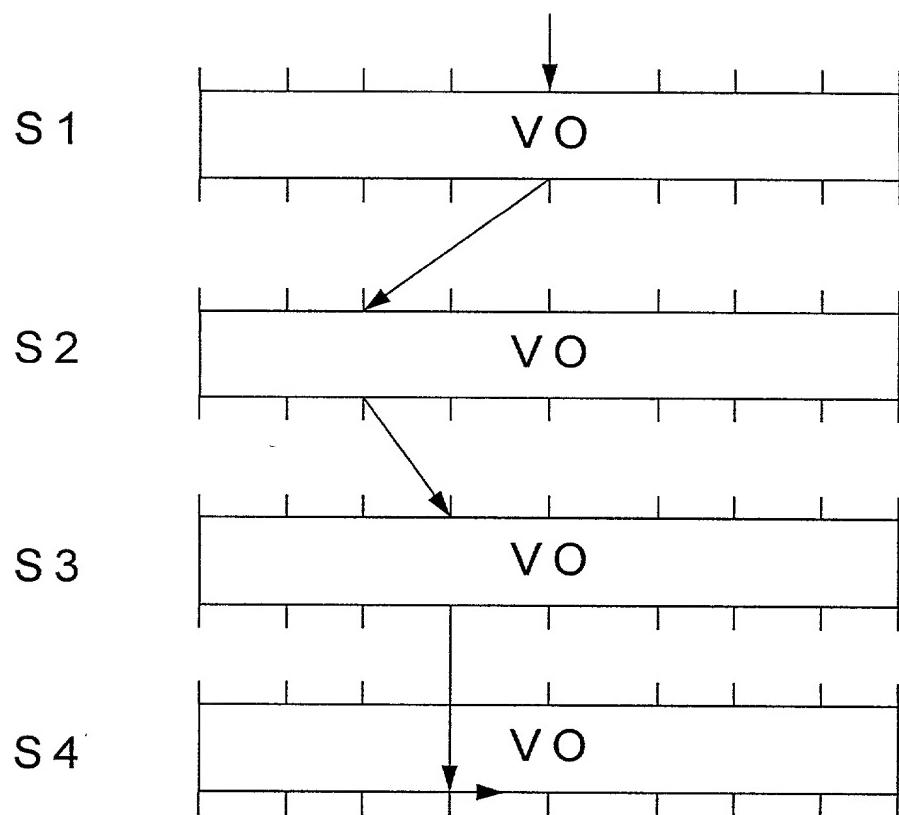
### Abstract

The invention relates to a replay appliance having a scanning device for recording media containing information blocks, having means for accessing the recording medium at a defined playing time if the recording medium has no concordance list producing a relationship between the replay time and the recording location, or the concordance list is damaged.

In order to access or to replay a recording medium at a defined playing time, said recording medium being, for example, a Digital Versatile Disk (which is also called a DVD) which has no so-called DVD Video Title Set Time Map Table, a replay appliance is provided which drives the scanning device (using a binary search) to a point on the recording medium which corresponds to the access defined by the playing time.

The field of application of the invention extends to replay appliances for recording media containing information blocks, such as a digital videodisc (which is also called a DVD).

### Figure



Figure

DECLARATION FOR UNITED STATES PATENT APPLICATION,  
POWER OF ATTORNEY, DESIGNATION OF CORRESPONDENCE ADDRESS

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**REPLAY APPLIANCE FOR RECORDING MEDIA CONTAINING INFORMATION BLOCKS**

the specification of which

(CHECK ONE)  (xx) is attached hereto.  
 was filed on \_\_\_\_\_, Application Serial. No.  
and was amended on .

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 CFR 1.56(a).

I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent, utility model, design or inventor's certificate having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Date Filed	Yes	No
198 59 845.9	DE	December 23, 1998	xx	

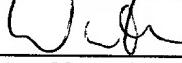
I hereby claim the benefit under 35 USC 120 of any US Application(s) listed below, and, insofar as the subject matter of each of the claims of this Application is not disclosed in the prior US application in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 CFR 1.56(a).

Serial No.: \_\_\_\_\_ Filed: \_\_\_\_\_

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under of 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Joseph S. Tripoli (Reg. No. 26,040), Peter M. Emanuel (Reg. No. 26,542), Eric Herrmann (Reg. No. 29,169) and Joseph J. Laks (Reg. No. 27,914) Telephone: (609) 734-9813.

Address all correspondence to Joseph S. Tripoli, Patent Operations - Thomson multimedia Licensing, Inc. - CN 5312- Princeton, New Jersey 08543-0028.

Signature:  Date: 17th day of September, 1999.

Sole or First Joint Inventor: Marco Winter

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Marco Winter

Filed: Herewith

For: REPLAY APPLIANCE FOR RECORDING MEDIA  
CONTAINING INFORMATION BLOCKS.

**APPOINTMENT OF ASSOCIATE ATTORNEY**

Hon. Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Please recognize as Associate Attorney in this case:

Paul P. Kiel  
Reg. No. 40,677

Respectfully submitted,  
Marco Winter

Peter M. Emanuel

By: Peter M. Emanuel  
Attorney, Reg. No. 26,542  
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Date: 12-22-99

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